Claims:

1. A method for making a sheet with a plurality of windings of a conductive wire, said method comprising the steps of:

covering a part of an outer surface of a mandrel with a non-adhesive layer,

covering a part of an outer surface of the non-adhesive layer with an adhesive layer,

coiling the wire onto an outer surface of the adhesive layer to form a wire coil in contact with the adhesive layer,

removing the wire coil and at least a part of the adhesive layer from the mandrel, and

flattening the wire coil to form a sheet structure comprising two layers of windings being joined by the adhesive layer.

2. The method according to claim 1, wherein the non-adhesive layer is a flexible sheet material.

3. The method according to claim 1, wherein the adhesive layer is made of a resilient glue material.

4. The method according to claim 1, wherein at least a part of the non-adhesive layer is removed from the mandrel together with the wire coil and adhesive layer, and wherein the non-adhesive layer is removed to expose the adhesive layer prior to the flattening of the wire coil.

5. The method according to claim 1, further comprising the step of applying at least one elongate stripe of a sheet material to an outer surface of the adhesive layer.

6. The method according to claim 5, wherein the stripe is applied in an axial direction of the wire coil to extend from one axial end portion to an opposite axially disposed end portion thereof.

7. The method according to claim 5, wherein the stripe is more rigid than the non-adhesive layer.

8. The method according to claim 7, wherein the stripe is made from a material selected from the group consisting of glass fibres, carbon fibres, epoxy, polyester, steel, wires of steel and any composition thereof.

9. The method according to claim 1, wherein a redial dimension of the mandrel is reduced prior to the removing of the wire coil and at least a part of the adhesive layer form the mandrel.

10. The method according to claim 1, further comprising the step of expanding the wire coil prior to the flattening by inserting elongate expanding elements into the wire coil and by moving the expanding elements away from each other.

11. The method according to claim 1, further comprising the step of rolling the sheet into a tubular coil element.

12. The method according to claim 11, wherein the rolling of the sheet into a tubular coil element is performed by fastening an end portion of the sheet structure to a mandrel and by subsequent rolling of the sheet structure around the mandrel.

13. The method according to claim 11, further comprising the step of applying an adhesive layer to at least one of

a surface of the tubular coil element, and

a surface of a corresponding core,

prior to joining the coil element and the core element to form a stator or a rotor for an electrical motor.

14. The method according to claim 13, wherein the tubular coil element is expanded into close contact with an inner surface of the tubular core element.

15. The method according to claim 11, wherein edge portions of at least two sheet structures are joined to form one unified sheet structure prior to the rolling of the unified sheet structure into a tubular coil element.

16. The method according to claim 1, wherein the flattening of the wire coil to form a sheet structure comprising two layers of windings comprises the steps of:

fastening a peripheral outer surface of the wire coil to a mandrel, and

rolling the wire coil around the mandrel to tilt and flatten the wire coil.

17. The method according to claim 1, wherein the non-adhesive layer and the adhesive layer is applied to the mandrel in one operation in the form of a glue transferring tape with the adhesive layer pre-applied to a non-adhesive layer.

18. The method according to claim 1, wherein the adhesive layer comprises a resilient glue material which is based on a material selected from the group consisting of rubber or wherein the glue material is based on acrylate or acrylic acid.

19. A flexible wire coil for an electrical motor and comprising a plurality of windings made form an insulated electrically conductive wire, each winding being adhesively joined to adjacent windings by a resilient glue material.

20. The coil according to claim 19, wherein the wire coil is flattened to form a sheet structure comprising two layers of windings.

21. The coil according to claim 20, wherein the sheet structure is rolled and wherein opposite peripheral end parts of the sheet are joined to form a flexible tubular coil element.

22. The coil according to claim 21, inserted into and expanded into contact with an inner surface of a tubular core element made from a magnetically conductive material.